

# PATENT SPECIFICATION

(11)

1 322 861

## DRAWINGS ATTACHED

1 322 861

- (21) Application No. 4496/71 (22) Filed 11 Feb. 1971  
 (23) Complete Specification filed 11 May 1972  
 (44) Complete Specification published 11 July 1973  
 (51) International Classification B05C 5/02  
 (52) Index at acceptance  
 B2L 26H1  
 (72) Inventor ANTHONY DENNIS FORD



## (54) IMPROVEMENTS IN OR RELATING TO GLUING OR GUMMING DEVICES

(71) We, MOLINS LIMITED, a British Company, of 2, Evelyn Street, Deptford, London, S.E.8., do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns improvements in or relating to gluing or gumming devices.

A known form of glue applicator comprises a nozzle having a closure member at its outlet which is pushed back into the nozzle to open the outlet and allow glue to issue. Such applicators may be used in packing machines to apply glue to desired locations on packet blanks. Such an applicator may apply glue directly to the article, such as a packet blank, to be glued, or may apply the glue to an intermediate member which presses against the closure member to open the nozzle outlet and transfers the glue so released to the article, as disclosed in British Patent Specification No. 1,210,117.

The nozzle may be carried by the piston of an air cylinder, air pressure being applied to the piston to hold the nozzle in the operative position against the action of a spring which retracts the nozzle when air pressure is cut off. In some applications not only is the closure member moved to open the outlet by contact with an article to be glued, or by contact with a transfer device, but the nozzle is moved bodily against the air pressure. This continual bodily reciprocating movement of the nozzle can cause excessive wear in the air cylinder.

According to the present invention a gluing device comprises a nozzle having a closure member at its outlet end which can be pushed back to apply glue, the nozzle being carried by one end of a piston having an axial passage therethrough to receive glue from a supply pipe at its other end, the piston being stepped to have

a smaller diameter portion remote from the nozzle, and being provided in a similarly stepped cylinder, both the larger and the smaller diameter portions of the piston each carrying a sealing ring engaging the cylinder walls, there being an air pressure connection to the cylinder to apply air pressure between the sealing rings to move the piston and nozzle to the operative position, and a spring to retract the piston and nozzle from the operative position.

The smaller diameter portion of the piston may comprise an externally threaded portion projecting out of the cylinder and connected to the supply pipe, a stop member being screwed on the externally threaded portion for axial adjustment relative thereto and being engageable with the cylinder to limit movement of the piston and nozzle to the operative position.

One embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, which:—

Figure 1 is an elevation, partly in section, of a glue applicator according to the invention, and

Figure 2 is a view in the direction of the arrow A in Figure 1.

The glue applicator comprises a cylinder 10 having a stepped bore with a larger diameter portion 11 and a smaller diameter portion 12. The cylinder 10 is made of a glass-filled phenolic material and is secured to stationary structure 13.

Provided within the stepped cylinder bore is a stepped piston 14 which has a larger diameter portion 14A and a smaller diameter portion 14B, the latter portion extending out of the top of the cylinder 10 and having an externally screw threaded portion 14C, and the larger diameter portion of the piston extending out of the lower end of the cylinder 10 and being internally screw threaded at 14D. The piston 14 has an axial

bore 14E which is supplied with glue under pressure by an elbow connection 15 which is screwed on to the threaded portion 14C. Screwed into the threaded portion 14D is a glue nozzle 16 which has a ball 16A at its outlet which is spring-loaded to close off the outlet so that pressing the ball into the nozzle causes glue to be applied to the article pressing against the ball. This article may be either the article to which the glue is to be applied, e.g. a packet blank, or may be an intermediate transfer device as in British Patent Specification No. 1,210,117.

Rotation of the piston 14 in the cylinder is prevented by a screwed member 17 which extends into an axial channel 14K in the piston.

The larger diameter portion 14A of the piston has a circumferential groove 14F in which is provided a rubber 'O' ring 14G, and similarly the smaller diameter portion 14B of the piston has a circumferential groove 14H in which is provided an 'O' ring 14J.

Air under pressure is applied to the interior of the cylinder 10 by an air connection at 18. The air contains oil mist to lubricate the piston 14. The air pressure moves the piston 14 and nozzle 16 downwards to an extent determined by an adjustable stop 19 which is screwed on to the portion 14C of the piston. A lock nut 20 is provided to lock the stop in position. A helical compression spring 21 mounted around the portions 14B and 14C between the top of the cylinder 10 and the stop 19 raises the piston when the air supply is cut off.

In operation, air pressure is applied so that the nozzle is in its extreme downward position limited by the adjustable stop 19. In some applications not only is the ball 16A pressed into the nozzle 16 but the article pressing against the ball moves the nozzle 16 and piston 14 bodily against the action of the air pressure.

#### WHAT WE CLAIM IS:—

1. A gluing device comprising a nozzle having a closure member at its outlet end

which can be pushed back to apply glue, the nozzle being carried by one end of a piston having an axial passage therethrough to receive glue from a supply pipe at its other end, the piston being stepped to have a smaller diameter portion remote from the nozzle and being provided in a similarly stepped cylinder, both the larger and the smaller diameter portions of the piston each carrying a sealing ring engaging the cylinder walls, there being an air pressure connection to the cylinder to apply air pressure between the sealing rings to move the piston and nozzle to the operative position, and a spring to retract the piston and nozzle from the operative position.

2. A gluing device according to claim 1 wherein the smaller diameter portion of the piston comprises an externally threaded portion projecting out of the cylinder and connected to the supply pipe, a stop member being screwed on the externally threaded portion for axial adjustment relative thereto and being engageable with the cylinder to limit movement of the piston and nozzle to the operative position.

3. A gluing device according to claim 2 wherein the spring for retracting the piston is a helical compression spring mounted around the smaller diameter portion of the piston between the cylinder and the stop member.

4. A gluing device according to any one of claims 1 to 3 wherein the sealing rings are 'O' rings carried by circumferential grooves in the piston.

5. A gluing device according to any one of claims 1 to 4 wherein the closure member is a ball mounted in the nozzle and spring loaded against the outlet end of the nozzle.

6. A gluing device substantially as herein described with reference to, and as illustrated in, the accompanying drawings.

W. A. POWLEY.  
Chartered Patent Agent,  
2, Evelyn Street,  
Deptford, London, S.E.8.  
Agent for the Applicants.

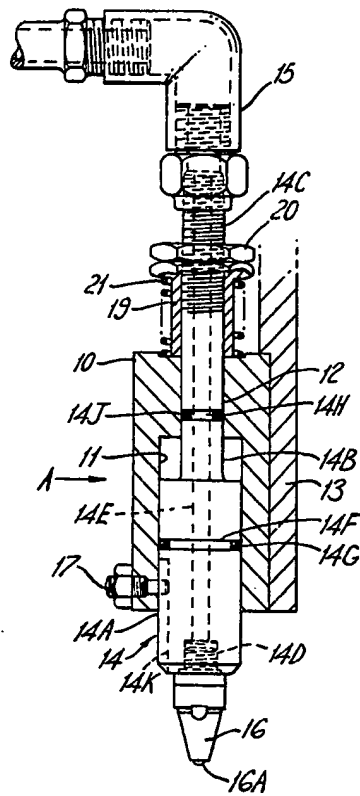


FIG. 1.

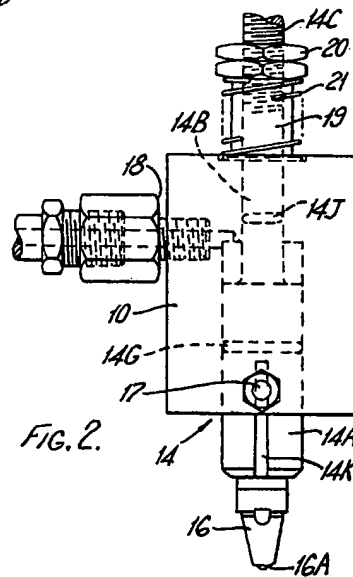


FIG. 2.